

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY DOCKET NO. MI22-2416	PRIORITY SERIAL NO. 40/330,881 10/688 439			
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT: Trung Tri Doan et al.				
				PRIORITY FILING DATE December 23, 2002 10/16/03	PRIORITY GROUP ART UNIT 2813			
U.S. PATENT DOCUMENTS								
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
R	AA	3,990,927	11/1976	Montier	—	—		
↓	AB	4,474,975	10/1984	Clemons et al.	—	—		
↓	AC	5,156,881	10/1992	Okano et al.	—	—		
↓	AD	5,182,221	01/1993	Sato	—	—		
↓	AE	5,410,176	04/1995	Liou et al.	—	—		
↓	AF	5,470,798	11/1995	Ouellet	—	—		
↓	AG	5,719,085	02/1998	Moon et al.	—	—		
↓	AH	5,741,740	04/1998	Jang et al.	—	—		
↓	AI	5,776,557	07/1998	Okano et al.	—	—		
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
R	AJ	02277253A	11/1990	Japan (Hayashide et al.)				
↓	AK	146224	01/1996	Japan				
	AL			/				
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
R	AM		Beekmann et al., <i>Sub-micron Gap Fill and In-Situ Planarisation using Flowfill™ Technology</i> , Electrotech 1-7					
↓	AN		ULSI Conference, Portland, OR (October 1995).					
↓	AO		Horie et al., <i>Kinetics and Mechanism of the Reactions of O²P with SiH₄, CH₃SiH₃, (CH₃)₂SiH₂, and (CH₃)₃SiH</i> , 95 J. PHYS. CHEM 4393-4400 (1991).					
↓	AO		Joshi et al., <i>Plasma Deposited Organosilicon Hydride Network Polymers as Versatile Resists for Entirely Dry Mid-Deep UV Photolithography</i> , 1925 SPIE 709-720 (January 1993).					
EXAMINER R		DATE CONSIDERED 4/17/05						
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. MI22-2416	PRIORITY SERIAL NO. 10/330,881 <i>10/688439</i>	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT: Trung Tri Doan et al.		
				PRIORITY FILING DATE December 23, 2002 <i>10/16/03</i>	PRIORITY GROUP ART UNIT 2813	

U.S. PATENT DOCUMENTS							
Examiner's Initials	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
<i>[Signature]</i>	AA	5,786,039	07/1998	Brouquet			
	AB	5,801,083	09/1998	Yu et al.			
	AC	5,863,827	01/1999	Joyner			
	AD	5,883,006	03/1999	Iba			
	AE	5,888,880	03/1999	Gardner et al.			
	AF	5,895,253	04/1999	Akram			
	AG	5,904,540	05/1999	Sheng et al.			
	AH	5,930,645	07/1999	Lyons et al.			
	AI	5,943,585	08/1999	May et al.			

FOREIGN PATENT DOCUMENTS							
Document Number	Date	Country	Class	Subclass	Translation		
					Yes	No	
AJ		<i>[Signature]</i>					
AK							
AL							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
<i>[Signature]</i>	AM		Kiermasz et al., <i>Planarisation for Sub-Micron Devices Utilising a New Chemistry</i> , Electrotech 1-2, DUMIC
			Conference, California (February 1995).
<i>[Signature]</i>	AN		Kojima et al., <i>Planarization Process Using a Multi-Coating of Spin-on-Glass</i> , V-MIC Conference, pp. 390-396
			(June 13-14, 1988).
<i>[Signature]</i>	AO		Matsuura et al., <i>A Highly Reliable Self-planarizing Low-k Intermetal Dielectric for Sub-quarter Micron</i>
			<i>Interconnects</i> , 97 IEEE 785-788 (July 1997).

EXAMINER <i>[Signature]</i>	DATE CONSIDERED <i>4/17/05</i>
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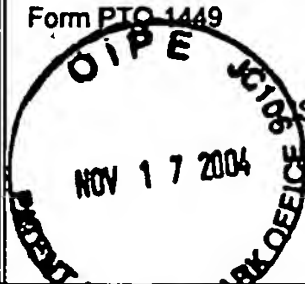
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Examiner's Initials	Class	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
		AA	5,950,094	09/1999	Lin et al.		
		AB	5,960,299	09/1999	Yew et al.		
		AC	5,972,773	10/1999	Liu et al.		
		AD	5,998,280	12/1999	Bergemont et al.		
		AE	6,030,881	02/2000	Papasoulitis et al.		
		AF	6,051,477	04/2000	Nam		
		AG	6,156,674	12/2000	Li et al.		
		AH	6,300,219 B1	10/2001	Doan et al.		
	AI						

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
		AJ						
		AK						
		AL						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
	AM		Matsuura et al., <i>Novel Self-planarizing CVD Oxide for Interlayer Dielectric Applications</i> , 94 IEEE 117-120 (1994).
	AN		McClatchie et al. <i>Low Dielectric Constant Flowfill™ Technology for IMD Applications</i> , 7 pages (pre-August 1999).
	AO		Withnall et al., <i>Matrix Reactions of Methylsilanes and Oxygen Atoms</i> , 92 J. PHYS. CHEM. 594-602 (1988).

EXAMINER	DATE CONSIDERED 4/17/05
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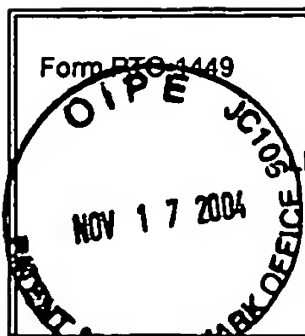
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	APPLICANT: Trung Tri Doan et al.		FILING DATE October 16, 2003	

U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
DS	AA	5,105,253	04/1992	Pollock	357	49	
	AB	5,604,149	02/1997	Paoli et al.	437	67	
	AC	5,616,513	04/1997	Shepard	438	402	
	AD	5,786,263	07/1998	Perera	438	431	
	AE	5,895,255	04/1999	Tsuchiaki	438	427	
	AF	5,923,073	07/1999	Aoki et al.	257	501	
	AG	5,981,354	11/1999	Spikes et al.	438	424	
	AH	5,989,978	11/1999	Peidous	438	436	
	AI	6,033,961	03/2000	Xu et al.	438	295	

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
DS	AJ	05-315441	11/1993	Japan				
↓	AK	06-334031	12/1994	Japan				
↓	AL	02/27063 A2	4/2002	WIPO (Gordon et al.)				

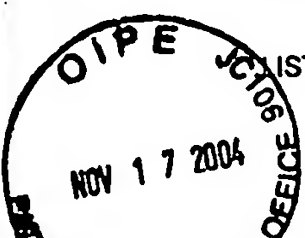
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
DS	AM		Curtis et al, "APCVD TEOS: O3 Advanced Trench Isolation Applications", Semiconductor Fabtech, 9 th Ed., p. 241 - 247
	AN		George, S.M. et al., "Atomic layer controlled deposition of SiO ₂ and Al ₂ O ₃ using ABAB... binary reaction sequence chemistry", Applied Surface Science 82/83, Elsevier Science B.V., July 10, 1994, p. 460-467.
	AO		Morishita et al. "Atomic-layer chemical-vapor-deposition of silicon-nitride", Applied Surface Science 112, Elsevier Science B.V., 1997, p. 198-204.
EXAMINER		DATE CONSIDERED	
DS		4/17/05	
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Form PTO-4449 	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. MI22-2416	SERIAL NO. 10/688,439
	LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)			
	APPLICANT: Trung Tri Doan et al.		FILING DATE October 16, 2003	GROUP 2812

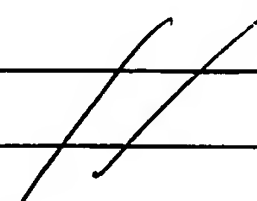
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*Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
DS	AA	6,090,675	07/2000	Lee et al.	438	301	
	AB	6,171,962	01/2001	Karlsson et al.	438	692	
	AC	6,187,651	02/2001	Oh	438	435	
	AD	6,191,002	02/2001	Koyanagi	438	431	
	AE	6,300,219	10/2001	Doan et al.	438	424	
	AF	6,326,282	12/2001	Park et al.	438	424	
	AG	6,329,266	11/2001	Hwang et al.	438	424	
	AH	6,355,966	03/2002	Trivedi	257	499	
	AI	6,583,060	06/2003	Trivedi	438	700	

FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AJ			EV372470863			
	AK						
	AL						

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
DS	AM		Yokoyama et al. "Atomic layer controlled deposition of silicon nitride and in situ growth observation by infrared reflection absorption spectroscopy", Applied Surface Science 112, Elsevier Science B.V., 1997, p. 75-81.
	AN		Gasser et al., "Quasi-monolayer deposition of silicon dioxide", Elsevier Science S.A., 1994, p. 213-218.
↓	AO		Shareef et al., "Subatmospheric chemical vapor deposition ozone/TEOS process for SiO ₂ trench filling", J. Vac. Sci. Technol. B 13(4), Jul/Aug 1995, p. 1888-1892.
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		FILING DATE October 16, 2003	GROUP 2812

U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
DS	AA	6,448,150	09/2002	Tsai et al.	438	427	
	AB	6,617,251	09/2003	Kamath et al.	438	691	
	AC	6,719,012	4/2004	Doan et al.			
	AD	6,583,028	6/2003	Doan et al.			
	AE	6,534,395 B1	10/2001	Werkhoven et al.			
	AF	2001/0006255 A1	07/2001	Kwon et al.	257	751	
	AG	2001/0006839 A1	07/2001	Yeo	438	435	
	AH	2001/0046753 A1	11/2001	Gonzalez et al.	438	424	
✓	AI	2002/0004284 A1	01/2002	Chen	438	427	

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AJ			EV372470863				
	AK							
	AL							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
DS	AM		Disclosed Anonymous 32246, "Substrate Contact with Closed Bottom Trenches", Research Disclosure, Feb. 1991, 1 page.
↓	AN		Hausmann et al., <i>Rapid Vapor Deposition of Highly Conformal Silica Nanolaminates</i> , 298 SCIENCE 402-406 (October 11, 2002)
✓	AO		Miller et al., <i>Self-limiting chemical vapor deposition of an ultra-thin silicon oxide film using tri-(tert-butoxy) Silanol</i> , 397 THIN SOLID FILMS 78-82 (2001).
EXAMINER DS		DATE CONSIDERED 4/17/05	

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U.S. PATENT DOCUMENTS							
Examiner's Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
<i>Dr</i>	AA	10/931,524		Sandhu			08/31/2004
	AB	10/615,051		Vaartstra			07/07/2003
	AC	10/655,699		Derderian et al.			09/05/2003
	AD	10/806,923		Li et al.			03/22/2004
	AE						
	AF						
	AG						
	AH						

EV372470863

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AI							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
<i>Dr</i>	AJ		Hausmann et al., "Catalytic vapor deposition of highly conformal silica nanolaminates", Department of Chemistry and Chemical Biology, Harvard University, May 14, 2002, pp. 1-13.
<i>Dr</i>	AK		Klaus et al., <i>Atomic Layer Deposition of SiO₂ Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions</i> , 6 SURFACE REVIEW AND LETTERS, Nos. 3 and 4, pp. 435-448 (1999).
	AL		
	AM		
EXAMINER <i>Dr</i>		DATE CONSIDERED 4/17/05	

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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT: Trung Tri Doan et al.				
				FILING DATE October 18, 2003		GROUP ART UNIT 1765		
U.S. PATENT DOCUMENTS								
*Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
DS	AA	6,770,469	06/23/98	Uram et al.	437	240		
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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
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